

REMARKS

CLAIM OBJECTIONS

Claims 50, 53 and 55 are objected to because of certain informalities. The Applicant agrees and has made appropriate amendments herein.

35 USC §102

US 4,118,102 (KUIST ET. AL)

Claims 41-42, 44-46, 59-61 are rejected under 35 USC §102(b) as being anticipated by Kuist et al. (US 4,118,102) herein after referred to as “KuiSt”. The Applicant respectfully disagrees, especially given the amendments presented herein.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof” (emphasis added). The original specification, on page 5, lines 1-4, recites the definition of “compliant” to mean “the property of a material that is yielding and formable at room temperature, as opposed to solid and unyielding at room temperature”.

Kuist teaches conductive inks and coatings. There is also nothing to suggest after a detailed review of the Kuist reference that compliant resins were disclosed, discussed or even referred to by the cited prior art. Therefore, Kuist does not teach all of the claimed elements of the present application. “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must

disclose each element of the claimed invention “**arranged as in the claim**”. *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Kuist does not teach an interface material that comprises at least one compliant resin material can be used in an interface material comprising at least one solder material. Based on this argument, along with others such as that discussed above, Kuist does not anticipate claim 41 of the present application because Kuist is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 41. Claim 41 is therefore allowable as not being anticipated by Kuist. Further, Kuist does not anticipate claims 42, 44-46 and 59-61 of the present application by virtue of their dependency on claim 41.

JP 09-067518 (SHINGO ET. AL)

Claims 41-42, 44-46, 48-50 and 59-62 are rejected under 35 USC §102(b) as being anticipated by Shingo et al. (JP 09-067518) herein after referred to as “Shingo”. The Applicant respectfully disagrees, especially given the amendments presented herein.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof” (emphasis added). The original specification, on page 5, lines 1-4, recites the definition of “compliant” to mean “the property of a material that is yielding and formable at room temperature, as opposed to solid and unyielding at room temperature”.

Shingo teaches conductive pastes. There is also nothing to suggest after a detailed review of the Shingo reference that compliant resins were disclosed, discussed or even referred to by the cited prior art. Therefore, Shingo does not teach all of the claimed elements of the present application. “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention “**arranged as in the claim**”. *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Shingo does not teach an interface material that comprises at least one compliant resin material can be used in an interface material comprising at least one solder material. Based on this argument, along with others such as that discussed above, Shingo does not anticipate claim 41 of the present application because Shingo is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 41. Claim 41 is therefore allowable as not being anticipated by Shingo. Further, Shingo does not anticipate claims 42, 44-46 and 59-61 of the present application by virtue of their dependency on claim 41.

US 4,790,968 (OHKAWA ET. AL)

Claims 41-46, 48, 51, 57, 59-60 and 63-64 are rejected under 35 USC §102(b) as being anticipated by Ohkawa et al. (US 4,790,968) herein after referred to as “Ohkawa”. The Applicant respectfully disagrees, especially given the amendments presented herein.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof” (emphasis added). The original specification, on page 5, lines 1-4, recites the definition of “compliant” to mean “the property of a material that is yielding and formable at room temperature, as opposed to solid and unyielding at room temperature”.

Ohkawa teaches a process for producing a pressure-sensitive electroconductive sheet by a) forming conductive circuits or electrodes in a flexible porous substrate and b) applying, followed by curing a pressure-sensitive conductive paste to either or both sides of the substrate to form a pressure-sensitive conductive layer. Further, Example 1 in Ohkawa discloses that the pressure-sensitive conductive paste must be heated to effect curing – thus creating the pressure-sensitive electroconductive sheet. Therefore, among other reasons, Ohkawa does not disclose the claimed invention, which contains in part that there must be at least one compliant resin material.

In addition, Ohkawa does not teach all of the claimed elements of the present application. “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention “**arranged as in the claim**”. *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Ohkawa does

not teach an interface material or a dispensable paste that comprises at least one compliant resin material can be used in an interface material comprising at least one solder material. Second, the Background Section in Ohkawa does not teach an interface material or a dispensable paste having at least one compliant resin material can be used in an interface material comprising at least one solder material. Based on this argument, along with others such as that discussed above, Ohkawa does not anticipate claim 41 of the present application because Ohkawa is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 41. Claim 41 is therefore allowable as not being anticipated by Ohkawa. Further, Ohkawa does not anticipate claims 42-46, 48, 51, 57, 59-60 and 63-64 of the present application by virtue of their dependency on claim 41.

US 5,852,092 (NGUYEN)

Claims 41-46, 48-50 and 57-62 are rejected under 35 USC § 102(b) as being anticipated by Nguyen (US Issued Patent 5,852,092). The Applicant respectfully disagrees.

The Applicant has previously submitted a Declaration Under 37 USC § 1.132 in the parent application that removes Nguyen as a prior art reference related to the present rejection. As mentioned in the Declaration:

- ✓ Honeywell International Inc. purchased Johnson Matthey Electronics, Inc. in August of 1999.
- ✓ Both the above-referenced application and US 5,852,092 were commonly owned by Honeywell International Inc. at the time the later invention was made even though the original assignee on US 5,852,092 was to Johnson Matthey, Inc.
- ✓ Both the above-referenced application and US Issued Patent No. 5,852,092 have a common inventor – My Nguyen.

Therefore, Nguyen cannot properly be considered a prior art reference by the Examiner, as based on the previous showing that the Nguyen reference and the current application are commonly owned at the time the later invention was made. Further, independent claim 41 and dependent claims 42-46, 48-50 and 57-62 are allowable as being patentable over Nguyen. The Applicant respectfully invites the Examiner to contact the undersigned Attorney-of-Record, if this issue remains unresolved by this Response.

US 5,227,093 (COLE ET. AL)

Claims 41-42, 43-46, 48-49, 51, 56-57 and 59-62 are rejected under 35 USC § 102(b) as being anticipated by Cole et al. (US 5,227,093) herein after referred to as “Cole”. The Applicant respectfully disagrees, especially given the amendments presented herein.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof” (emphasis added). The original specification, on page 5, lines 1-4, recites the definition of “compliant” to mean “the property of a material that is yielding and formable at room temperature, as opposed to solid and unyielding at room temperature”.

Cole discloses an improved organosiloxane composition containing high loadings of finely divided silver particles coated with esterified fatty acid. According to Cole, the distinguishing feature of the present composition is the esterified fatty acid coating on the silver particles. Therefore, among other reasons, Cole does not disclose the claimed invention, which contains in part that there must be at least one compliant resin material. Further, after a fair reading of Cole, one with ordinary skill in the art of electronic components and electronic component assembly would not be able to comprehend that at least one compliant resin material can be used in an interface material comprising at least one solder material nor would know how to make an interface material comprising at least one compliant resin material and at least one solder material.

In addition, Cole does not teach all of the claimed elements of the present application. “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention “**arranged as in the claim**”. *Lindermann Maschinenfabrik GmbH*

v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Cole does not teach an interface material that comprises at least one compliant resin material can be used in an interface material comprising at least one solder material. Second, the Background Section in Cole does not teach an interface material having at least one compliant resin material can be used in an interface material comprising at least one solder material. Based on this argument, along with others such as that discussed above, Cole does not anticipate claim 41 of the present application because Cole is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 41. Claim 41 is therefore allowable as not being anticipated by Cole. Further, Cole does not anticipate claims 42, 43-46, 48-49, 51, 56-57 or 59-62 of the present application by virtue of their dependency on claim 41.

35 USC §§102/103

US 5,837,119 (KANG ET. AL)

Claims 41, 43-44 and 52-54 are rejected under 35 USC § 102(b) and claim 55 is rejected under § 103(a) as being anticipated by and in the alternative as being unpatentable over Kang et al. (US 5,837,119) herein after referred to as “Kang”. The Applicant respectfully disagrees, especially given the amendments presented herein.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof” (emphasis added). The original specification, on page 5, lines 1-4, recites the definition of “compliant” to mean “the property of a material that is yielding and formable at room temperature, as opposed to solid and unyielding at room temperature”.

Kang teaches methods for forming pastes of dendrites particles coated with an electrically conductive coating. According to column 4, lines 58-62, Kang teaches that “A joining operation can be performed near the melting point of In, 157°C, where a metallurgical bonding of In-to-In or In-to-Au or In-to-Cu is accomplished at the dendritic particle-to-particle as well as dendritic particle-to-substrate pad interfaces.” Furthermore, claim 1 in Kang recites that the coated dendrites must be “heated....to a temperature sufficient to fuse said coating between adjacent coated dendrites, said temperature being insufficient to melt said copper”. There is also nothing to suggest after a detailed review of the Background Section in Kang that compliant resins were disclosed, discussed or even referred to by the cited prior art.

Therefore, among other reasons, Kang does not disclose the claimed invention, which contains in part that there must be at least one compliant resin material. Further, after a fair reading of Kang, one with ordinary skill in the art of electronic components and electronic component assembly would not be able to comprehend that at least one compliant resin material can be used in an interface material comprising at least one solder material nor would know how to make an

interface material comprising at least one compliant resin material and at least one solder material.

In addition, Kang does not teach all of the claimed elements of the present application. “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” *W. L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)) Further, the prior art reference must disclose each element of the claimed invention “**arranged as in the claim**”. *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Kang does not teach an interface material that comprises at least one compliant resin material can be used in an interface material comprising at least one solder material. Second, the Background Section in Kang does not teach an interface material having at least one compliant resin material can be used in an interface material comprising at least one solder material. Based on this argument, along with others such as that discussed above, Kang does not anticipate claim 41 of the present application because Kang is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 41. Claim 41 is therefore allowable as not being anticipated by Kang. Further, Kang does not anticipate claims 43-44 or 52-54 of the present application by virtue of their dependency on claim 41.

In addition, the present application and cited claims are patentable over Kang. Based on the description of the Kang reference, along with the arguments present above, there is no motivation, teaching or suggestion to one of ordinary skill in the art of electronic components or electronic component design and assembly after a fair reading of Kang to prepare an interface material or a dispensible paste that comprises at least one compliant resin material and at least one solder material. Therefore, among other reasons, claim 41 is patentable in view of the Kang reference. Further claim 55 is patentable by virtue of its dependency on claim 41.

TERMINAL DISCLAIMERS

Claims 41, 43, 51 and 63 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 11-12 and 18-20 of US Patent No. 6,673,434. Although, the Applicant respectfully disagrees, the Applicant herein attaches a terminal disclaimer that should moot this rejection.

Claims 41 and 46 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 17 and 18 of US Patent No. 6,797,382. Although, the Applicant respectfully disagrees, the Applicant herein attaches a terminal disclaimer that should moot this rejection.

Claims 41, 43, 56 and 63 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 11-12, 15, 18-19, 20 and 22 of copending US Application Serial No.: 10/715,719. Although, the Applicant respectfully disagrees, the Applicant herein attaches a terminal disclaimer that should moot this rejection.

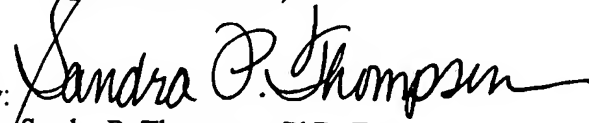
REQUEST FOR ALLOWANCE

Claims 41-64 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented and allow all current and pending claims.

Respectfully submitted,

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